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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

February 1, 2012

Glen Eurick
Kennecott Utah Copper, LLC
4700 Daybreak Parkway
South Jordan, Utah 84095

Subject: Initial Review of Notice of Intention to Commence Large Mining Operations, Kennecott Utah Copper LLC, Bonneville Borrow Mine, M/035/0046, Salt Lake County, Utah

Dear Mr. Eurick:

The Division of Oil, Gas and Mining has completed a review of the referenced Notice of Intention to Commence Large Mining Operations which was received November 29, 2011. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using redline and strikeout text. After the notice is determined technically complete, the Division will ask that you submit two clean copies of the complete and corrected plan. Upon final approval, one copy stamped approved will be returned for your records.

The Division will suspend further review of the Notice of Intention until your response is received. Please contact me at 801-538-5261 or Leslie Heppler at 801-538-5257 if you have questions about the review. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB: lah: eb
Attachment: Review
Cc: DBacon@utah.gov
P:\GROUPS\MINERALS\WP\M035-SaltLake\M0350046-BonnevilleBorrow\final\REV1-4532-02012012.doc



**INITIAL REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS**

Kennecott Utah Copper, LLC

Bonneville Borrow

M/035/0046

February 1, 2012

General Comments:

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
1	General	Submittal should be formatted to easily incorporate additional revisions and amendments.	lah	
2	General	Additional comments from the Division can be generated in the future based on submittals received in the future, every attempt should be made by the Operator to submit a complete NOI the first time around.	lah	
3	All	Please include the permit number, M/035/0046.	lah	
4	All	All slope angles need to include horizontal and vertical notation (H:V), and should be consistent throughout the plan. On page 10, for example, the slope angles are shown as 1:1, 2.5:1 and then 2.5:1. Standard notation is H:V. This comment applies to the entire document, including pages 30 and 31.	lah	

R647-4-104 - Operator's, Surface and Mineral Ownership

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
5	Page 5 number 1.	The Division requests that the name of one of the registered principals, such as Kelly D. Sanders, be included together with the operator name.	lah	
6	Page 6 Top of page	Please include the Fax number and an e mail address.	lah	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
7	Figures - All	As shown, it appears that all streams are perennial; please clarify between perennial and intermittent streams. Two streams are shown to dead end; please clarify.	lah	

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
8	Figures - All	On all figures that show the excavations, please add an arrow and sump location to the borrow area floors to show water storage of any surface storm water as is written on pages 24 and 25, i.e. add the detail of Figure 2 SWPPP to Figures 4A, 4B and 4C.	lah	

105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
9	Figure 2	The boundary of Kennecott Utah Copper's surface ownership is not clear. The color in the legend doesn't match the colors in the map. Please clarify.	lah	

105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
10	Figure 5b	OGM prefers that you use stone check dams for sediment control rather than hay or straw bales. They fit small irregular topographic contours better.	lah	
11	Figure 5c	Please show locations of silt fence installation on Figures or change note to read "as directed by engineer".	lah	
12	Figure 5c	Silt fences shown on the figure are high maintenance. Please add a note that the silt fences will be maintained on an ongoing basis.	lah	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
13	Figure 4d & 4e	The 3-D renderings of the Phase I are nice, but OGM would like to also see interim reclamation treatments on a plan map.	lah	
14	Figure 5	Please show which reclamation treatments will be done at the different locations, the road vs. highwall vs. 2.5H:1V treatments.	lah	
15	Figures 6 & 6a	Please refer in a note on which figure the cross sections are located (i.e. Fig 4B, 4C).	lah	
16	Figures 6 & 6a	Please add a legend with line styles for existing and final grade lines.	lah	
17	Figures 6 & 6a	OGM prefers no vertical exaggeration, but it is not required by rule. Add maximum slope angles in the form of "*H: 1V" if you resubmit with vertical exaggeration.	lah	
18	Figure 9	Re-title map as surface geologic map.	lah	
19	Figure 9	Add strike and dip to the Kessler Canyon formation on the map.	lah	
20	Figure 9	Re-label in the legend and on the map - PP to PPok to match the stratigraphic column to the left of the figure, or other modification that the operator might suggest to Figure 9, so the left stratigraphic column matches the right side of the map.	lah	

105.4 - Photographs

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
21	Appendix A	A map showing photo locations is helpful but not required by rule.	lah	

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R647-4-106 - Operation Plan

106.2 - Type of operations conducted, mining method, processing etc.

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
22	Page 11 para 4	The plan says fines from crushing will be disposed of off the borrow sites. Please show where the fines will be placed and include in the bond.	lah	
23	Page 12 and/or Page 30	The NOI needs to include blasting safety as related to public safety. Include things such as maximum vibration limits, etc.	lah	
24	Page 12 para 4	The plan says typical blasting rounds are assumed to consist of packaged ANFO explosives and electronic blast-initiation system. Kennecott usually uses nonel. Please verify.	lah	
25	Page 12 para 5	The plan says blast protocols will follow Kennecott's and Rio Tinto safety standards. Please include MSHA.	lah	
26	Page 12 Para 3	Please rewrite this section and include the definition of abbreviations used (cy and cyd). This applies to the rest of the document, MSL, K BYC, MCY (see paragraph 1 on page 18 for proper format).	lah	

106.3 - Estimated acreages disturbed, reclaimed, annually

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
27	Table 1	Please tie the Table 1 estimated acre values to Figure 5 and/or 5A.	lah	

106.4 - Nature of materials mined, waste and estimated tonnages

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
28	Page 13 last para	This paragraph says about 3.1 MCY will be produced during Phase 2, but Table 2 notes 2,900,000 cubic yard. Please correct this apparent discrepancy.	lah	
29	Table 2	Please include a hyphen or a zero in cells where the values are expected to be none.	lah	

106.5 - Existing soil types, location, amount

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
30	Back of page 15 & 16	To accommodate the large Table 3, the back of page 15 and 16 is blank. It would be helpful if these pages were marked, "this page is intentional left blank."	lah	

106.6 - Plan for protecting & re-depositing soils

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
31	Pages 27-28	While crested wheatgrass is not necessarily an undesirable species, it is a bunch grass and may not be the best choice for soil stabilization. It is also quite competitive and would probably dominate at the seeding rate proposed. It is suggested to reduce the seeding rate of this species to 0.5 lbs per acre.	lk	

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106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
32	Pages 18-20, Appendix B (veg.study)	The information presented here addresses only the plant community/species present information. It does not provide appropriate data for establishing the reclamation success standard. Vegetation cover is reported by species and/or relative cover (such that the total for vegetation only is 100%) but does not take into account overlap. To establish the revegetation standard, the Division needs a total percent vegetation ground cover. From the photos provided, there is bare ground showing, so vegetation ground cover cannot equal 100%. Please provide the results of a vegetation ground cover survey where the aerial extension of vegetation, litter, rock and bare ground total 100%.	lk	

106.8 - Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
33	Page 21 para 3	Paragraph is titled "Overburden Materials," and it refers to Figure 4a which contains Growth Media Stockpiles. If it is intended that overburden material will be mined and processed and stored as growth media, please state in the NOI. Based on the statements in Section 106.9 (page 22), it appears there will be no overburden material.	lah	
34	Page 21 para 4	Please refer to Figure 9 in this paragraph.	lah	

R647-4-109 - Impact Assessment

109.1 - Impacts to surface & groundwater systems

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
35	Appendix E – no page #	Include the information from Appendix E – from the unnumbered page that is titled "...permitting position statement."	lah	

109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
36	Appendix & Page 29	Submit Air Quality Permit when received	lah	
37	Page 30 3 rd bullet	Please reword. A blast survey does not need to be added to the plan, but documentation needs to be available at KUC.	lah	

R647-4-110 - Reclamation Plan

110.1 - Current & post mining land use

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
38	Omission	The current mining land use is clearly stated, but the postmining land use is not stated. Please include the postmining land use.	lk	

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110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
39	Page 31 para 6	Please clarify the width dimensions of the 5,000 feet of road including variations in width.	lah	
40	Page 31, para 6	Please describe how the roads will be reclaimed. Will they be covered with soil, or will they be ripped and seeded with no topsoil application?	lah	
41	Page 32, para 6	The grading of the pit floor to a "one percent slope" is an important concept and should be included elsewhere in the NOI when discussing drainage and hydrology.	lah	
42	Omission	It is not clear if the final slope of the 1H: 1V highwall will be left with benches or as a constant slope to eliminate rockfall.	lah	
43	Omission	Please note in the plan that the haul road and the drainage crossing at the north west corner of the process area will be maintained for the vertical alignment of the north-south roads vertical alignment. Also include notes on the other crossing of the haul roads. Show on figure 5.	lah	
44	Page 31	The plan says the final status of roads used during the Bonneville Borrow operation are subject to refinement over time and will be declared when the final reclamation plan is submitted for approval. The reclamation plan, once approved, will be considered final, so the plan should reflect the final status of the roads if the site were reclaimed today. Please note that amendments may be submitted at any time in the future should the need arise.	lk	

110.5 - Revegetation planting program

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
45	Page 35	<p>The Division has some concerns with the proposed final reclamation seed mix and the seeding methods. White yarrow, rubber rabbitbrush, and big sagebrush should be broadcast on the surface, not drilled. Because these are also very small seeds, the rates shown in the plan are very high. Consider reducing the seeding rate of yarrow to 0.1 lb/ac, rabbitbrush to 0.25 lb/ac, and big sagebrush to 0.1 lb/ac.</p> <p>Please explain the need for the cereal rye. Unless there is compelling evidence that a cover crop is needed, please remove this species from the mix. It can come to dominate a site in much the same way as cheatgrass.</p> <p>Please consider adding the following species to increase diversity and improve wildlife habitat (which is assumed will be part of the post mining land use): pacific aster at 0.1 lb/ac, Palmer penstemon at 0.5 lb/ac, and forage kochia at 0.5 lb/ac.</p>	lk	

R647-4-113 - Surety

Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
46	Page 36 para 1	The plan says a summary of reclamation costs is included below, but this summary has not yet been included. Please include the OGM Summary Worksheet with the bonded acres included, along with the latest escalation data.	lah	

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Comment #	Sheet/Page Map/Table #	Comments	Initials	Review Action
47	Appendix F	Please provide detailed reclamation cost estimates using the Division's forms. If the Operator does not want to include reclamation cost estimates until the plan has been approved please note in the submittal.	whw	